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(54) **FLEXIBLE SHAFT FOR GAS TURBINE ENGINE**

(75) Inventors: **William G. Sheridan**, Southington, CT (US); **Michael E. McCune**, Colchester, CT (US); **Alessio Pescosolido**, West Hartford, CT (US)

(73) Assignee: **United Technologies Corporation**, Hartford, CT (US)

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See application file for complete search history.

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Primary Examiner — Louis Casaregola
(74) *Attorney, Agent, or Firm* — O'Shea Getz P.C.

(57) **ABSTRACT**

A shaft for a gas turbine engine is provided that includes a first shaft section, a second shaft section, a first flexible linkage, and a second flexible linkage. The first shaft section extends between a forward axial end and an aft axial end along a first axial centerline. The second shaft section extends between a forward axial end and an aft axial end along a second axial centerline. The first flexible linkage includes a bridge section connected between a first diaphragm and a second diaphragm. The first diaphragm is connected to the aft axial end of the first shaft section. The second diaphragm is connected to the forward axial end of the second shaft section. The second flexible linkage includes a diaphragm and a hub. The second flexible linkage diaphragm cantilevers radially outwardly from an inner radial end to an outer radial end, and is connected to the aft axial end of the second shaft section. The hub is connected to the outer radial end of the second flexible linkage diaphragm, and includes an engine shaft coupling connected to the hub.

19 Claims, 7 Drawing Sheets